WHAT IS CLAIMED IS:

1   1.   A method of forwarding a network packet comprises:

2   reading a table containing a plurality of flags to

3   determine which of the plurality of flags is set or cleared;

4   and

5   performing an operation on the packet to decapsulate or

6   encapsulate the packet in accordance with values of the flags.

1   2.   The method of claim 1 wherein the tables are populated

2   with forwarding information.

1   3.   The method of claim 1 wherein the forwarding table

2   structures include a control and management structure

3   including a network stack interface and table managers.

1   4.   The method of claim 1 wherein the table managers manage

2   routing tables and can include a plurality of tables including

3   a layer 4 connection table, a layer 3 destination table, a

4   layer 2 bridge table and a layer 2 connection table.

1   5.   The method of claim 1 wherein the tables include a flag

2   to indicates whether the bytes should be stripped from the

3   packet and a field that indicates the number of bytes to be

4   stripped.

1   6.   The method of claim 1 wherein the tables include a field

2   that specifies decapsulation of header layers up to the

3   specified layer.

1   7.   The method of claim 1 wherein the tables includes a field

2   that specifies an identifier of the current packet

3   encapsulation type.

1   8.   The method of claim 1 wherein the tables include a flag

2   that indicates whether bytes should be prepended to the

3   packet, a field that specifies the number of bytes and the

4   bytes to be encapsulated.

1   9.   The method of claim 1 wherein the tables include a Next

2   Table Type field which indicates that a further lookup is

3   required and identifies the table type.

1   10.   A method for encapsulating/decapsulating packets

2   comprises:

3   receiving a packet;

4   reading in a first header of the packet and perform a

5   layer 2 look-up reading a connection table which return

6   parameters;

7   determine if the table returned a decap or encap flag.

1   11.   The method of claim 10 wherein if the decap and encap

2   flags are set,

3   adding the decap byte count to a packet start offset and

4   subtracting the encap byte count from the packet start offset;

5   and

6   prepending the encap bytes to the packet.

1   12.   The method of claim 10 further comprising:

2   determining if there is a next table to examine by

3   looking at the blank field in the currently read table.

1   13.   The method of claim 12 wherein if there is a next table,

2   parsing the next header and fetch and read the next

3   table.

1   14.   The method of claim 11 wherein if the decap and encap

2   flags were not set,

3   determine if the encap flag or the decap flag were set.

1   15.   The method of claim 11 wherein if the encap flag was set,

2   subtract the encap flag byte count from the start offset

3   and prepend the encap bytes to the packet.

1   16.   The method of claim 11 wherein if the decap flag was set

2   add a decap byte count to the buffer offset and check the next

3   table.

1   17.   The method of claim 11 wherein the packet is comprised of

2   one or more headers followed by a payload, the method further

3   comprises:

4   copying the payload portion of the packet to a packet

5   buffer.

1   18.   The method of claim 17 wherein copying may place the

2   packet at an offset in the buffer to make room for any new

3   header that could be prepended to the packet for packet

4   forwarding.

1   19.   A computer program product residing on a computer

2   readable media for forwarding a network packet comprises

3   instructions to cause a computer to:

4   read a table containing a plurality of flags to

5   determine, which of the plurality of flags is set or cleared;

6   and

7   perform an operation on the packet to decapsulate or

8   encapsulate the packet in accordance with values of the flags.

1   20.   The computer program product of claim 19 wherein the

2   tables are populated with forwarding information.

1   21.   The computer program product of claim 19 wherein the

2   forwarding table structures include a control and management

3   structure including a network stack interface and table

4   managers.

1   22.   A computer program product residing on a computer

2   readable media for forwarding a network packet comprises

3   instructions to cause a computer to:

4   receive a packet;

5   read in a first header of the packet and perform a layer

6   2 look-up reading a connection table which return parameters;

7   determine if the table returned a decap or encap flag.

1   23.   The computer program product of claim 22 wherein if the

2   decap and encap flags are set, the computer program executes

3   instructions to:

4   add the decap byte count to a packet start offset and

5   subtracting the encap byte count from the packet start offset;

6   and

7 prepend the encap bytes to the packet.

1 24. The computer program product of claim 22 further

2 comprising instructions to:

3 determine if there is a next table to examine by looking

4 at the blank field in the currently read table.

1 25. The computer program product of claim 24 wherein if there

2 is a next table, the computer program executes instructions

3 to:

4 parse the next header and fetch and read the next table.

1 26. The computer program product of claim 22 wherein the

2 packet is comprised of one or more headers followed by a

3 payload, the computer program product further executes

4 instructions to:

5 copy the payload portion of the packet to a packet

6 buffer.

1 27. The computer program product of claim 26 wherein

2 instuctions to copy place the packet at an offset in the

3 buffer to make room for any new header that could be prepended

4 to the packet for packet forwarding.

1 28. A processor for processing a network packet comprises:

2   a computer storage media storing instructions to cause a

3   computer to:

4   read a table containing a plurality of flags to

5   determine, which of the plurality of flags is set or cleared;

6   and

7   perform an operation on the packet to decapsulate or

8   encapsulate the packet in accordance with values of the flags.

1   29.   The processor of claim 28 wherein the table contains

2   forwarding information.

1   30.   A method of decapsulating a network packet

2   comprises:

3   reading a table containing a plurality of flags to

4   determine which of the plurality of flags is set or cleared;

5   and

6   performing a decapsulate operation on the packet in

7   accordance with values of the flags.

1   31.   The method of claim 30 wherein the table contains

2   forwarding information.